

We claim:

1. A gas turbine combustor comprising:
 - a side wall, for defining a combustion volume, having upstream and downstream ends;
 - 5 a pilot nozzle, disposed adjacent the upstream end of the side wall, for discharging a pilot fuel to form diffusion flame in the combustion volume;
 - a plurality of main nozzles, provided around the pilot nozzles, for discharging a fuel-air mixture to form premixed flames in the combustion volume;
 - 10 and
 - means for supplying film air into the combustion volume downstream of the main nozzles along the inner surface of the side wall to reduce the fuel-air ratio in a region adjacent the inner surface of the side wall and to restrain a combustion-driven oscillation in the combustion volume.
- 15 2. A gas turbine combustor, according to claim 1, wherein the side wall includes a plurality of oscillation damping orifices which are defined in a region downstream of the main nozzles and extend radially through the side wall.
- 20 3. A gas turbine combustor, according to claim 2, further comprising an acoustic liner attached to the outer surface of the side wall in a region where the oscillation damping orifices are defined.
- 25 4. A gas turbine combustor, according to claim 4, wherein the acoustic liner comprises a plurality of liner segments attached to the outer surface of the side wall.
- 30 5. A gas turbine combustor, according to claim 4, wherein the liner segments include bellows portions for reducing thermal stress due to the temperature difference between the side wall of the gas turbine combustor and the respective liner segments.
- 35 6. A gas turbine combustor, according to claim 5 further comprising catches attached to the outer surface of the side wall; and

the liner segments including engagement portions for engaging the catches whereby the engagement of the engaging portions with the catches allows the liner segments to be attached to the outer surface of the side wall.

7. A gas turbine combustor, according to claim 6 further comprising sealing members provided between the engaging portions and the catches or the side wall.

8. A gas turbine combustor, according to claim 1, wherein the side wall includes a plurality of steam passages for allowing cooling steam to flow therethrough; and

the oscillation damping orifices being disposed in lines between the steam passages.

9. A gas turbine combustor, according to claim 8, wherein the acoustic liner includes a peripheral wall facing the side wall of the combustor and a plurality of air cooling orifices defined in the peripheral wall disposed in lines aligned over the lines of the oscillation damping orifices.

10. A gas turbine combustor, according to claim 9, wherein the air cooling orifices are disposed to face the wall portions between the adjoining oscillation damping orifices.

11. A gas turbine combustor comprising:

a side wall for defining a combustion volume the side wall having upstream and downstream ends;

a pilot nozzle, disposed adjacent the upstream end of the side wall, for discharging a pilot fuel to form diffusion flame in the combustion volume;

a plurality of main nozzles, provided around the pilot nozzles, for discharging a fuel-air mixture to form premixed flames in the combustion volume; and

the side wall including a plurality of oscillation damping orifices which are defined in a region downstream of the main nozzles and extend radially

through the side wall.

12. A gas turbine combustor, according to claim 11 further comprising an acoustic liner attached to the outer surface of the side wall in a region where the oscillation damping orifices are defined.

13. A gas turbine combustor, according to claim 12, wherein the acoustic liner comprises a plurality of liner segments attached to the outer surface of the side wall.

14. A gas turbine combustor, according to claim 13, wherein the liner segments include bellows portions for reducing the thermal stress due to the temperature difference between the side wall of the gas turbine combustor and the respective liner segments.

15. A gas turbine combustor, according to claim 14 further comprising catches attached to the outer surface of the side wall; and

the liner segments including engagement portions for engaging the catches whereby the engagement of the engaging portions with the catches allows the liner segments to be attached to the outer surface of the side wall.

16. A gas turbine combustor, according to claim 15 further comprising sealing members provided between the engaging portions and the catches or the side wall.

17. A gas turbine combustor, according to claim 11, wherein the side wall includes a plurality of steam passages for allowing cooling steam to flow therethrough; and

the oscillation damping orifices being disposed in lines between the steam passages.

18. A gas turbine combustor, according to claim 17, wherein the acoustic liner includes a peripheral wall facing the side wall of the combustor and a plurality of air cooling orifices defined in the peripheral wall disposed in lines aligned over the lines of the oscillation damping orifices.

19. A gas turbine combustor, according to claim 18,

wherein the air cooling orifices are disposed to face the wall portions between the adjoining oscillation damping orifices.